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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application No.: 10/562,430  
Filing Date: December 27, 2005  
Applicant(s): Nestor Rekalde Arrieta  
Group Art Unit: 3679  
Examiner: Gregory John Binda  
Title: OUTER JOINT PART WITH SUPPORTING DISC  
Attorney Docket No. GKNG 1267 PCT (36249-33)

Board of Patent Appeals and Interferences  
United States Patent and Trademark Office  
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**APPEAL BRIEF**

This brief is submitted pursuant to the Notice of Appeal of the Final Rejection filed April 11, 2008 and pursuant to the Notice of Panel Decision from Pre-Appeal Brief Review mailed May 2, 2008.

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**(I) REAL PARTY IN INTEREST**

The real party in interest in this matter is GKN Driveline Deutschland GbmH, and is the assignee of the present invention and application.

**(II) RELATED APPEALS AND INTERFERENCES**

There are no other known appeals or interferences, which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(III) STATUS OF THE CLAIMS**

Claims 17-31 are currently pending and are under final rejection, from which this appeal is taken. Claims 17-31 stand rejected and are the subject of this appeal.

Claims 1-16 were previously cancelled.

**(IV) STATUS OF AMENDMENTS**

There were no amendments after the Final rejection. Claims 17-31 stand rejected and are the subject of this appeal.

**(V) SUMMARY OF CLAIMED SUBJECT MATTER**

Referring initially to Figures 1-8 and pages 3-5, the invention is directed towards a constant velocity universal joint assembly comprising a constant velocity universal joint 11 (Figure 1) [0012] having an outer joint part 12 in the form of a joint bell 16 [0012] with an attached connecting journal 17 [id] and a radial supporting face 18 [id] at the joint bell 16 at the face of the connecting journal 17. The invention further includes a wheel hub 25 which is slid onto the connecting journal 17 (Figure 2) [0012] and, via threading 26 [0013], is clamped onto the outer joint part 12 [0013] wherein the wheel hub 25 is directly or indirectly supported on the supporting face 18 [0013]. An annular disc 22 made of low friction material (Figure 2) [0017] is

positioned directly on the supporting face 18 so as to be concentric relative to the connecting journal 17 (Figure 2) [0012] and which accommodates the clamping force of the threading 26 [0013].

Unlike prior assemblies, the present invention allows micro movements at the supporting face while suppressing the development of noise. Prior assemblies were subject to noise generated by micro movements and often resorted to careful machining to minimize this noise development.

There is one independent claim at issue, claim 17, which recites a constant velocity universal joint assembly comprising a constant velocity universal joint 11 (Figure 1) [0012] having an outer joint part 12 in the form of a joint bell 16 [0012] with an attached connecting journal 17 [id] and a radial supporting face 18 [id] at the joint bell 16 at the face of the connecting journal 17. The invention further includes a wheel hub 25 which is slid onto the connecting journal 17 (Figure 2) [0012] and, via threading 26 [0013], is clamped onto the outer joint part 12 [0013] wherein the wheel hub 25 is directly or indirectly supported on the supporting face 18 [0013]. An annular disc 22 made of low friction material (Figure 2) [0017] is positioned directly on the supporting face 18 so as to be concentric relative to the connecting journal 17 (Figure 2) [0012] and which accommodates the clamping force of the threading 26 [0013].

#### **(VI) GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL**

The following issues are presented in this appeal, which correspond directly to the Examiner's final ground for rejection in the final Office Action dated April 11, 2008:

A. Whether claims 17-25 & 29-31 are properly rejected under 35 USC 102(a) as anticipated by Booker et al (5,833,243).

B. Whether claims 17-31 are patentable under 35 USC 103(a) over Mizukoshi (6,135,571) in view of Coleman (2,713,504).

## (VII) ARGUMENT

### 35 USC 102(a) as anticipated by Booker et al (5,833,243)

#### Claim 17

Claim 17 was rejected under 35 USC 102(b) as being anticipated by Booker et al . The Applicant respectfully requests the Board to overturn this rejection. The Examiner asserts that Booker in Figure 8 clearly identifies the claimed elements of the present invention. The Applicant seeks reconsideration. Booker, in Figure 8, discloses an outer race 84 of a constant velocity joint and a transfer case output component 82. The two parts 82,84 are connected with each other in a rotationally fixed way by means of a splined connection, wherein the runout portions of the splines of part 84 form a stop face which is abutted by the end portions of the splines of part 82. Between the parts 82 and 84 there is provided an annular gap which is sealed by a seal 80 in order to prevent dirt from entering the connection region. Thus, Booker lacks the claimed connection between the outer joint part 12 [0013] (Figure 2) and the wheel hub 25 [0013], i.e. that the outer joint part 12, via threading 26 [0013], is clamped to a wheel hub 25. Booker teaches to use runouts of the splined connection as an axial stop. There is no axial clamping of part 82 relative to part 84, which would not make any sense, since otherwise the elastic seal 80 would be destroyed. Booker also fails to disclose that the wheel hub 25 is supported (directly by an outer bearing or indirectly via an inner bearing race) on the supporting face 18 [0013] of the outer joint part 12 and that the annular disc 22 accommodates the clamping forces of the threading 25 [0013]. In Booker, part 82 is not supported against a radial supporting face of part 84, but against the runouts of the splined connection. In order to have a proper seal

between parts 82 and 84, Booker must have an annular gap between parts 82 and 84 so that the parts must not be axially clamped together, otherwise the seal 80 would be damaged. Therefore, clearly Booker fails to disclose essential elements of the claimed invention and the rejection should be overturned. Therefore, the Board is formally requested to overturn this rejection.

#### **Claim 18**

In addition to the failure of Booker et al to teach the underlying limitations of independent claim 17, Booker et al fails to teach the additional claimed limitation contained in dependent claim 18 wherein the assembly further comprises bearings 34 [0013] (Figure 2) positioned on the wheel hub 25 and whose inner bearing races 32,33 are axially supported on the wheel hub 25 and on the annular disc 22 [0013] (Figure 2). Therefore, clearly Booker fails to disclose essential elements of the claimed invention and the rejection should be overturned. Therefore, the Board is formally requested to overturn this rejection.

#### **Claim 19**

In addition to the failure of Booker et al to teach the underlying limitations of independent claim 17, Booker et al fails to teach the additional claimed limitation contained in dependent claim 19 wherein the assembly further comprises bearings 34 [0013] (Figure 2) positioned on the wheel hub 25 and whose inner bearing races 32,33 are clamped to the wheel hub 25 by an annular beading 39 (Figure 3) [0014] at the wheel hub 25, wherein the annular beading 39 is directly axially supported at the annular disc 22 (Figure 3). Therefore, clearly Booker fails to disclose essential elements of the claimed invention and the rejection should be overturned. Therefore, the Board is formally requested to overturn this rejection.

**Claim 20-22**

In addition to the failure of Booker et al to teach the underlying limitations of independent claim 17, Booker et al fails to teach the additional claimed limitation contained in dependent claims 20-23. Each of these dependent claims carries an identical additional limitation wherein the annular disc 22 is a cylindrical portion starting from the outer edge of the annular disc 22 and positioned on the joint bell 16 in a force locking way (Figure 2). Booker et al fails to teach this novel limitation. Therefore, clearly Booker fails to disclose essential elements of the claimed invention and the rejection should be overturned. Therefore, the Board is formally requested to overturn this rejection

**Claims 29-31**

The Applicant respectfully allows these claims to rise or fall based upon the allowability of their respective underlying base claims.

**35 U.S.C. §103(a) over Mizukoshi (6,135,571) in view of Coleman (2,713,504)**

Claims 17-31 were rejected under 35 USC 103(a) as unpatentable over Mizukoshi (6,135,571) in view of Coleman (2,713,504).

**Claim 17**

The Applicant respectfully traverses this rejection and seeks the Board's reconsideration. The Examiner asserts that Mizukoshi teaches all the limitations of the present invention absent material makeup of the annular disc, and that Coleman teaches this makeup. The Examiner disagrees with Applicant's assertion that Mizukoshi fails to disclose clamping forces and cites Figure 35 and elements 141 and 142 as rebuttal. Figure 35, referenced by the Examiner, shows a bolt 142 being screwed into the threaded hole 141 and tightened. However, it can be seen that

there is an annular gap between the outer joint part 11 and the hub 6a such that the outer joint part can axially move towards the hub. This further described in column 35, lines 42-45, where it reads that the hub 6a is resiliently held in the axial direction between the retaining plate 143 and the O-Ring 142. This clearly means that the outer joint part 11 can be moved resiliently relative to the wheel hub 6a. Thus Figure 35 of Mizokoshi lacks a wheel hub being supported (either directly by an annular beading or indirectly over an inner bearing race) on the supporting face of the outer joint part. Furthermore, as the Examiner correctly stated, Mizokoshi fails to disclose an annular disc made of a low-friction material.

It is further seen from Mizokoshi in Figures 8-13 which illustrate wheel-hub devices, wherein clearly the outer joint part 11 is not axially clamped to the hub 6a, as claimed in the present invention. The opposite is the case. In Figure 8, the axial positioning of the outer joint part relative to the wheel hub is realized by means of the securing ring 35 which abuts an end face of the inner bore of the hub. The outer joint part simply cannot be axially clamped to the wheel hub, since there are no clamping means whatsoever. It is true that Mizokoshi teaches that *the resilient plate 49 is clamped together with the ring-shaped portion 46* (col 18, lines 39-44) and that *in the case of this example, the splined shaft 30 is prevented from being displaced relative to the splined bore 28 further towards the left than as shown in Figure 8, by means of the ring shaped portion 56 and the resilient plate 49* (col 18, lines 46-49). However, this does not include that the outer joint part is clamped to the wheel hub by means of a threading, as claimed in the present invention. In Mizokoshi no axial clamping forces are effective between the outer joint and the wheel hub, as can be achieved by threading. Further, Figure 8 lacks the annular disc which is positioned on the supporting face of the outer joint part and which accommodates the clamping forces of the threading. Similarly the text passage (col 3, line 61) referred to by the

Examiner merely states the annular ring is provided to prevent play between the joint bell and the wheel hub. This fails to include that the outer joint part, via threading is clamped to the wheel hub nor that the annular disc accommodates the clamping forces of the threading. Reconsideration is formally requested.

Finally, the Applicant believes the Examiner has misconstrued Coleman. Coleman discloses fluid tight joints which bear no relationship with the claimed outer joint part being connected to a wheel hub. A person skilled in the art would not be compelled to take Coleman into account when looking for a solution to the object of the claimed invention. The Applicant asserts that such combination is strictly hindsight in light of the present invention.

In addition, compared with claim 17 of the present invention, Coleman fails to disclose the following features:

- an outer joint part of a constant velocity joint in the form of a joint bell with a connecting journal and a radial support face
- the outer joint part which, by threading, is clamped to a wheel hub to be slid on to the connecting journal
- a wheel hub which is supported on the supporting face of the outer joint part, and
- an annular disc made of low-friction material being position on the supporting face of the outer joint part and accommodating the clamping forces of the threading.

Therefore, the Applicant asserts that a prima facie case of obviousness or anticipation has not been properly established and reconsideration is requested. None of the cited references addresses the problem addressed by the present invention, much less teaches or suggests a solution thereto. Neither Coleman nor Mizokoshi teaches an outer joint part being clamped to a wheel hub via a threading, as claimed in the invention. Thus, no noise can be generated between the outer joint part and the wheel hub in the references, so the references cannot comprise a solution to the problem as is addressed in the present invention.

**Claim 18**

In addition to the failure of Mizokoshi or Coleman et al to teach the underlying limitations of independent claim 17, neither Mizokoshi or Coleman teaches the additional claimed limitation contained in dependent claim 18 wherein the assembly further comprises bearings 34 [0013] (Figure 2) positioned on the wheel hub 25 and whose inner bearing races 32,33 are axially supported on the wheel hub 25 and on the annular disc 22 [0013] (Figure 2). . Therefore, clearly neither Mizokoshi or Coleman, alone or in combination, discloses essential elements of the claimed invention and the rejection should be overturned. Therefore, the Board is formally requested to overturn this rejection.

**Claim 19**

In addition to the failure of Mizokoshi or Coleman to teach the underlying limitations of independent claim 17, neither Mizokoshi or Coleman teaches the additional claimed limitation contained in dependent claim 19 wherein the assembly further comprises bearings 34 [0013] (Figure 2) positioned on the wheel hub 25 and whose inner bearing races 32,33 are clamped to the wheel hub 25 by an annular beading 39 (Figure 3) [0014] at the wheel hub 25, wherein the annular beading 39 is directly axially supported at the annular disc 22 (Figure 3). . Therefore, clearly neither Mizokoshi or Coleman, alone or in combination, discloses essential elements of the claimed invention and the rejection should be overturned. Therefore, the Board is formally requested to overturn this rejection.

**Claim 20-22**

In addition to the failure of Mizokoshi or Coleman to teach the underlying limitations of independent claim 17, neither Mizokoshi or Coleman teaches the additional claimed limitation contained in dependent claims 20-23. Each of these dependent claims carries an identical

additional limitation wherein the annular disc 22 is a cylindrical portion starting from the outer edge of the annular disc 22 and positioned on the joint bell 16 in a force locking way (Figure 2). Neither Mizokoshi or Coleman teaches this novel limitation. Therefore, clearly neither Mizokoshi or Coleman, alone or in combination, discloses essential elements of the claimed invention and the rejection should be overturned. Therefore, the Board is formally requested to overturn this rejection.

#### **Claims 23-25**

In addition to the failure of Mizokoshi or Coleman to teach the underlying limitations of independent claim 17, neither Mizokoshi or Coleman teaches the additional claimed limitation contained in dependent claims 23-25. Each of these dependent claims carries an identical additional limitation wherein the annular disc 22 comprises an anti-friction coating [0017]. Neither Mizokoshi or Coleman teaches this novel limitation. Therefore, clearly neither Mizokoshi or Coleman, alone or in combination, discloses essential elements of the claimed invention and the rejection should be overturned. Therefore, the Board is formally requested to overturn this rejection.

#### **Claims 26-31**

The Applicant respectfully allows these claims to rise or fall based upon the allowability of their respective underlying base claims.

It is respectfully asserted that the claims as currently pending are in condition for allowance and that a Formal Notice of Allowance be issued therefor.

#### **(VIII) CLAIMS APPENDIX**

See Exhibit A.

#### **(IX) EVIDENCE APPENDIX**

None

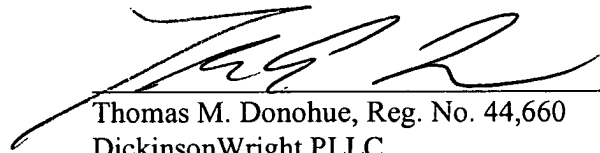
**(X) RELATED PROCEEDINGS APPENDIX**

None

**(XI) CONCLUSION**

For the reasons advanced above, Appellants respectfully contend that each claim is patentable. Therefore reversal of the rejections of the pending claims, and Notice of Allowance thereof are requested.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Tom Donohue', is written over a horizontal line.

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Dated: June 11, 2008

**EVIDENCE APPENDIX**

No submitted or related evidence.

**RELATED PROCEEDINGS APPENDIX**

No related proceedings

**EXHIBIT A****CLAIMS APPENDIX**

- 1-16. (Cancelled)
17. (Rejected/Appealed) A constant velocity universal joint assembly comprising:
- a constant velocity universal joint with an outer joint part in the form of a joint bell with an attached connecting journal and a radial supporting face at the joint bell at the base of the connecting journal;
  - a wheel hub which is slid on to the connecting journal and which, via threading, is clamped to the outer joint part, wherein the wheel hub is directly or indirectly supported on the supporting face; and
  - an annular disc made of a low-friction material, which is positioned directly on the supporting face so as to be concentric relative to the connecting journal and which accommodates the clamping forces of the threading.
18. (Rejected/Appealed) A constant velocity universal joint assembly according to claim 17 comprising bearings positioned on the wheel hub and whose inner bearing races are axially supported on the wheel hub and on the annular disc.
19. (Rejected/Appealed) A constant velocity universal joint assembly according to claim 17 comprising bearings positioned on the wheel hub and whose inner bearing races are axially clamped to the wheel hub by annular beading at the wheel hub, wherein the annular beading is directly axially supported at the annular disc.
20. (Rejected/Appealed) A constant velocity universal joint assembly according to claim 17, wherein the annular disc comprises a cylindrical portion which starts from an outer edge of the annular disc and is positioned on the joint bell in a force-locking way.

21. (Rejected/Appealed) A constant velocity universal joint assembly according to claim 18, wherein the annular disc comprises a cylindrical portion which starts from an outer edge of the annular disc and is positioned on the joint bell in a force-locking way.

22. (Rejected/Appealed) A constant velocity universal joint assembly according to claim 19, wherein the annular disc comprises a cylindrical portion which starts from an outer edge of the annular disc and is positioned on the joint bell in a force-locking way.

23. (Rejected/Appealed) A constant velocity universal joint assembly according to claim 17, wherein the annular disc comprises an anti-friction coating.

24. (Rejected/Appealed) A constant velocity universal joint assembly according to claim 18, wherein the annular disc comprises an anti-friction coating.

25. (Rejected/Appealed) A constant velocity universal joint assembly according to claim 19, wherein the annular disc comprises an anti-friction coating.

26. (Rejected/Appealed) A constant velocity universal joint assembly according to claim 17, wherein the annular disc comprises bronze or non-ferrous metal.

27. (Rejected/Appealed) A constant velocity universal joint assembly according to claim 18, wherein the annular disc comprises bronze or non-ferrous metal.

28. (Rejected/Appealed) A constant velocity universal joint assembly according to claim 19, wherein the annular disc comprises bronze or non-ferrous metal.

29. (Rejected/Appealed) A constant velocity universal joint assembly according to claim 17, wherein the annular disc comprises plastics.

30. (Rejected/Appealed) A constant velocity universal joint assembly according to claim 18, wherein the annular disc comprises plastics.

31. (Rejected/Appealed) A constant velocity universal joint assembly according to claim 19, wherein the annular disc comprises plastics.